Statement of Work for eLISA Prototype Telescope Support Task

Task 140

Task Mod. No. 10

POP: on October 16, 2017 - September 30, 2019

Document revision history

Mod	Date	Change
1		Extend the period of performance
2		Extend the period of performance
3		Extend the period of performance, and add optical design support
4		Extend the period of performance, extend optical design support, and removed scattered light support.
5		Change the RA (no change to the SOW)
6		(1) Add scattered light support back in through the end of the calendar year 2017. (2) add support for telescope materials, manufacturing and testing to the main task (SubTask 1) (3) add SubTask 2 for support for UltraStable Structures Research
7		Admin modification to substitute Patty Hollister for Suzette
8		Add support for telescope MOSA work on Sub Task 1. Sub Task 2 is unchanged, and thermal support for Sub Task 1 is unchanged.
9	13Jun2018	Add support for an optical designer
10	28Aug2018	Extend the period of performance

Note – Separate subtask accounting and reporting is required

Subtask 1: Support for the LISA Telescope Project

SCOPE OF WORK:

1. Thermal Support
    a. The contractor shall provide thermal modeling support for the eLISA Prototype Telescope project.
        i. Anticipated activities include:

1. Working with a mechanical designer to develop a thermal model based on our existing mechanical model and new optical design, and iterating as needed
2. Working with a mechanical designer to conduct a Structural, Thermal, Optical analysis (STOP) to determine and understand the performance of the prototype telescope as it is taken from room temperature conditions on the ground to simulated thermal conditions in space, and iterating as needed.

b. Level of effort is estimated at **REDACTED** through the end of FY18 on Sep 30, 2019

2. Telescope Mechanical Design and Analysis
   a. The contractor will provide support for the mechanical design and development of a CAD model for the LISA Telescope and associated Moveable Optical Subs Assembly (MOSA) structure
   b. The contractor will provide support for the structural analysis of these models
   c. The structural analysis may be used as part of a STOP analysis at some point in the future.
   d. **REDACTED**
3. Telescope optical design and analysis
   a. The contractor will perform optical design of the LISA Telescope as needed
   b. The contractor will perform/assist with optical analysis, including, but not limited to tolerance analysis, performance against requirements, and assisting with reviews.
   c. **REDACTED**

PERIOD OF PERFORMANCE:

The initial period of performance shall be from the task inception at or near the end of April, 2016 through the end of FY16 on September 30, 2016.

Mod 1: The period of performance shall be extended through the end of the calendar year, Dec 31, 2016. Currently there are funds available to continue work at the existing level of performance.

Mod 2: The period of performance shall be extended through the May 31, 2017. Currently there are funds available to continue work at the existing level of performance.

Mod 3: The period of performance shall be extended through September 30, 2017. The intent is to continue beyond this, but funding is not yet in place.

Mod 4: The period of performance shall be extended through September 30, 2019.

Mod 6: The period of performance for thermal support will remain through Sep 30, 2019. The period of performance for the scattered light support will be through December 29, 2017.

Mod 8: The period of performance for thermal support will remain unchanged through Sep 30, 3018. The period of performance for mechanical support will begin 4/1/2018 and run through Sep 30, 2019.

Mod 9: The period of performance for thermal support will remain unchanged through Sep 30, 3018. The period of performance for mechanical support will remain unchanged through Sep 30, 2018.

Mod 10: The period of performance for thermal support will remain unchanged through Sep 30, 3019. The period of performance for mechanical support will remain unchanged through Sep 30, 2019.

DELIVERABLES:

1. Provide a thermal model for the LISA telescope suitable for a STOP analysis.
2. Iterate as needed on the thermal model
3. Provide a mechanical model and analysis of the LISA telescope
4. Provide an optical model and analysis as needed for the LISA Telescope

Subtask 2: Support for Ultrastable Structures Research

SCOPE OF WORK:

1) Provide support for the optical laboratory work of the Ultrastable Structures research.
    a. Experience with deformable mirrors, nulling interferometry, opto-mechanical design, and setting up and performing experiments on a test bed
    b. REDACTED

PERIOD OF PERFORMANCE:

The initial period of performance shall be from the task inception beginning on October 16, 2017 through the end of FY18 on September 30, 2019

DELIVERABLES:

1) Laboratory support as required